

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 November 2005 (10.11.2005)

PCT

(10) International Publication Number
WO 2005/104690 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/US2005/012685

(22) International Filing Date: 14 April 2005 (14.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/562,717 16 April 2004 (16.04.2004) US

(71) Applicant and

(72) Inventor: MCNAUGHTON, Patrick, James [US/US];
2550 Medicine Ridge Road, Plymouth, MN 55441 (US).

(74) Agents: PAIGE, James, J. et al.; Fredrikson & Byron,
P.A., Suite 4000, 200 South Sixth Street, Minneapolis, MN
55402-1425 (US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished
upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: WINDSHIELD HEAT AND CLEAN

(57) Abstract: A washer fluid heater apparatus in embodiments of the invention may include one or more of the following features:
(a) a heat exchanger having a washer fluid inlet to allow washer fluid to enter the heat exchanger and a washer fluid outlet to allow
the washer fluid to exit the heat exchanger; and (b) a coolant passage traversing through the heat exchanger having a coolant inlet
and a coolant outlet, the coolant inlet and coolant outlet operably coupled to an engine's coolant system to allow passage of engine
coolant through the heat exchanger.



WO 2005/104690 A2